

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**

0500

#6/jrc  
O I P E  
0705-01

RAW SEQUENCE LISTING DATE: 12/01/2000  
 PATENT APPLICATION: US/09/715,927 TIME: 13:23:36

Input Set : A:\12421035-002 SEQ LISTING.TXT  
 Output Set: N:\CRF3\12012000\I715927.raw

ENTERED

```

4 <110> APPLICANT: Zon, Leonard I.
5       Donovan, Adriana
7 <120> TITLE OF INVENTION: FERROPORTIN1 NUCLEIC ACIDS AND PROTEINS
10 <130> FILE REFERENCE: 1242.1035-002
C--> 12 <140> CURRENT APPLICATION NUMBER: US/09/715,927
C--> 12 <141> CURRENT FILING DATE: 2000-11-17
12 <150> PRIOR APPLICATION NUMBER: US 60/133,382
13 <151> PRIOR FILING DATE: 1999-05-10
15 <150> PRIOR APPLICATION NUMBER: US 09/567,672
16 <151> PRIOR FILING DATE: 2000-05-09
18 <160> NUMBER OF SEQ ID NOS: 16
20 <170> SOFTWARE: FastSEQ for Windows Version 4.0
22 <210> SEQ ID NO: 1
23 <211> LENGTH: 3773
24 <212> TYPE: DNA
25 <213> ORGANISM: Danio rerio
27 <220> FEATURE:
28 <221> NAME/KEY: CDS
29 <222> LOCATON: (238)...(1926)
31 <400> SEQUENCE: 1
32 acgagggtgcg agcgggtctg gccatttcgg gaattatag ttttattca catagttgt 60
33 ctagaaagt tatttccttc cgacttcacgc tacagtgata gctaagtttggagaggagaa 120
34 aaggagata ttctgttattt ggcggaaat atatttgcaat cggaggattta ctttgcggaa 180
35 gccttacaaa ggagtccaaa tcccgccgag aaaaaaacaa tcgataaaaa acgcaca atg 240
36                                         Met
37                                         1
39 gac agc cct gca tca aag aaa cct cgc tgc gag agg ttc cgc gaa ttc 288
40 Asp Ser Pro Ala Ser Lys Lys Pro Arg Cys Glu Arg Phe Arg Glu Phe
41      5          10          15
43 ttc aag tct gca aaa ttc ctc att tac gtc gga cat gcc ctc tcg aca 336
44 Phe Lys Ser Ala Lys Phe Leu Ile Tyr Val Gly His Ala Leu Ser Thr
45      20          25          30
47 tgg ugg gat cgg atg tgg aat ttt gct gtg gct gtg ttt ctg gtg gag 384
48 Trp Gly Asp Arg Met Trp Asn Phe Ala Val Ala Val Phe Leu Val Glu
49      35          40          45
51 ctg tat ggc aat agt tta ctc ctg aca gcc gtg tat gga ctg gtg gtc 432
52 Leu Tyr Gly Asn Ser Leu Leu Leu Thr Ala Val Tyr Gly Leu Val Val
53 50          55          60          65
55 gcg ggc tcc gtq ctc tta ctg ggc gct att att ggt gac tgg gtt gac 480
56 Ala Gly Ser Val Leu Leu Leu Gly Ala Ile Ile Gly Asp Trp Val Asp
57      70          75          80
59 aaa aac ccc aga ttg aaa gtg gca cag acg tct ttg gtt gtc cag aac 528
60 Lys Asn Pro Arg Leu Lys Val Ala Gln Thr Ser Leu Val Val Gln Asn
61      85          90          95
63 agt gct gtc att ctc tgt ggt gcc ctt ttg atg gct gtt ttc cag ttc 576
64 Ser Ala Val Ile Leu Cys Gly Ala Leu Leu Met Ala Val Phe Gln Phe
65      100         105         110

```

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/09/715,927

DATE: 12/01/2000  
TIME: 13:23:36

Input Set : A:\12421035-002 SEQ LISTING.TXT  
Output Set: N:\CRF3\12012000\I715927.raw

67	aaa caa cag ctt tct agc atg tat gat	gga	tgg	tgt	ctg	aca	aca	tgc	624								
68	Lys	Gln	Gln	Leu	Ser	Ser	Met	Tyr	Asp	Gly	Trp	Ieu	Ieu	Thr	Thr	Cys	
69	115			120			125										
71	tac	ata	atg	gtc	atc	tcc	att	gct	aat	atc	gct	aac	ctg	gcc	agc	aca	672
72	Tyr	Ile	Met	Val	Ile	Ser	Ile	Ala	Asn	Ile	Ala	Asn	Leu	Ala	Ser	Thr	
73	130			135			140			145							
75	gct	atg	tcc	atc	acc	ata	caa	aqa	gac	tgg	gtt	gtq	gtq	gtq	gct	gga	720
76	Ala	Met	Ser	Ile	Thr	Ile	Gln	Arg	Asp	Trp	Val	Val	Val	Val	Ala	Gly	
77	150			155			160										
79	gat	gat	cgg	agc	aaa	tgg	gca	gat	atg	aat	gca	act	gtc	aga	ata	att	768
80	Asp	Asp	Arg	Ser	Lys	Leu	Ala	Asp	Met	Asn	Ala	Thr	Val	Arg	Ile	Ile	
81	165			170			175										
83	gac	cag	ttg	acc	aac	att	ctg	gca	ccg	atg	ctt	gtg	ggc	cag	atc	atg	816
84	Asp	Gln	Leu	Thr	Asn	Ile	Leu	Ala	Pro	Met	Leu	Val	Gly	Gln	Ile	Met	
85	180			185			190										
87	gca	ttt	ggc	tcg	cac	tcc	att	ggc	tgt	ttt	atc	tcg	ggc	tgg	aac	864	
88	Ala	Phe	Gly	Ser	His	Phe	Ile	Gly	Cys	Gly	Phe	Ile	Ser	Gly	Trp	Asn	
89	195			200			205										
91	ttg	tcc	tcc	atg	tgc	ctg	gag	tat	tcc	ctg	ctt	tgg	aaa	gtt	tat	cag	912
92	Leu	Phe	Ser	Met	Cys	Leu	Glu	Tyr	Phe	Leu	Leu	Trp	Lys	Val	Tyr	Gin	
93	210			215			220			225							
95	aaa	act	cca	gcg	ttt	gcc	ttt	aag	gca	gga	cag	aag	gat	agc	gat	gac	960
96	Lys	Thr	Pro	Ala	Ieu	Ala	Phe	Lys	Ala	Gly	Gln	Lys	Asp	Ser	Asp	Asp	
97	230			235			240										
99	caa	gag	ctg	aaa	cac	ctc	aac	ata	caa	aaa	gaa	att	gga	aac	act	gaa	1008
100	Gln	Glu	Leu	Lys	Leu	Asn	Ile	Gln	Lys	Glu	Ile	Gly	Asn	Thr	Glu		
101	245			250			255										
103	agc	ccg	gtc	gaa	gcc	tcc	caa	ctg	atg	act	gaa	agc	tcc	gag	ccc	aag	1056
104	Ser	Pro	Val	Glu	Ala	Ser	Gln	Leu	Met	Thr	Glu	Ser	Ser	Glu	Pro	Lys	
105	260			265			270										
107	aag	qac	acc	ggc	tgc	tgc	tac	caa	atg	gca	gag	ccc	atc	cgt	acc	ttt	1104
108	Lys	Asp	Thr	Gly	Cys	Cys	Tyr	Gln	Met	Ala	Glu	Pro	Ile	Arg	Thr	Phe	
109	275			280			285										
111	aaa	gat	ggc	tgg	gta	gcc	tac	tac	aat	caa	tcc	atc	tcc	tcc	gcc	ggc	1152
112	Lys	Asp	Gly	Trp	Val	Ala	Tyr	Tyr	Asn	Gln	Ser	Ile	Phe	Phe	Ala	Gly	
113	290			295			300			305							
115	atg	tct	ctg	gtc	tcc	cta	tac	atg	acc	gtt	tgg	ggc	tcc	gac	tgc	atc	1200
116	Met	Ser	Leu	Ala	Phe	Leu	Tyr	Met	Thr	Val	Leu	Gly	Phe	Asp	Cys	Ile	
117	310			315			320										
119	acc	aca	qgc	tat	gca	tac	act	cag	ggc	ctg	aat	ggc	tct	gtg	ctc	agt	1248
120	Thr	Thr	Gly	Tyr	Ala	Tyr	Thr	Gln	Gly	Leu	Asn	Gly	Ser	Val	Leu	Ser	
121	325			330			335										
123	ctc	ctc	atg	gga	gcc	tca	gtc	gtt	gta	tct	ggg	atc	tgt	ggg	aca	gtg	1296
124	Leu	Leu	Met	Gly	Ala	Ser	Ala	Val	Ser	Gly	Ile	Cys	Gly	Thr	Val	Ala	
125	340			345			350										
127	ttc	acc	tgg	atc	cga	aag	aag	tgc	ggc	ctc	atc	agg	acg	ggc	tcc	att	1344
128	Phe	Thr	Trp	Ile	Arg	Lys	Lys	Cys	Gly	Leu	Ile	Arg	Thr	Gly	Phe	Ile	
129	355			360			365										
131	gct	gga	gtc	acc	cag	ctg	tcc	tgc	ctc	acg	ctg	tgt	gta	gca	tct	gtc	1392

RAW SEQUENCE LISTING DATE: 12/01/2000  
PATENT APPLICATION: US/09/715,927 TIME: 13:23:36

Input Set : A:\12421035-002 SEQ LISTING.TXT  
Output Set: N:\CRF3\12012000\I715927.raw

132 Ala Gly Val Thr Cln Leu Ser Cys Leu Thr Leu Cys Val Ala Ser Val		
133 370	375	380
135 ttc gcc cct ggt aqc cct ttc gat ctc agc gtc tcg ccc ttc aaa gag		385
136 Phe Ala Pro Gly Ser Pro Phe Asp Leu Ser Val Ser Pro Phe Lys Glu		1440
137	390	395
		400
139 gtc tta aga cat ctg ttt gga gac agc ggc tcg ctg cgt gag aqt cct		1488
140 Val Leu Arg His Leu Phe Gly Asp Ser Gly Ser Ile Arg Glu Ser Pro		
141	405	410
		415
143 aca ttc att cct aca act gaa ccc ccg att cag gcc aac gtc acc gtt		1536
144 Thr Phe Ile Pro Thr Thr Glu Pro Pro Ile Gin Ala Asn Val Thr Val		
145	420	425
		430
147 ttt gag gaa gcc ccc cca gta gag tcc tac atg tct gtt ggg ctt ctc		1584
148 Phe Glu Glu Ala Pro Pro Val Glu Ser Tyr Met Ser Val Gly Leu Leu		
149	435	440
		445
151 ttt gcc ggt gtt att gct gct aga gtt ggt ctt tgg tcc ttc qac ttg		1632
152 Phe Ala Gly Val Ile Ala Ala Arg Val Gly Leu Trp Ser Phe Asp Leu		
153 450	455	460
		465
155 acc gtg .acc caa ctg atc caa gag aat gtg att gag tcc gag .aga gga		1680
156 Thr Val Thr Gln Leu Ile Gln Glu Asn Val Ile Glu Ser Glu Arg Gly		
157	470	475
		480
159 gtc atc aat ggc gtc cag aac tcc atg aat tat ctt ctc gat ctc ctg		1728
160 Val Ile Asn Gly Val Gln Asn Ser Met Asn Tyr Ile Leu Asp Leu Leu		
161	485	490
		495
163 cac ttc atc atg gtc atc ctt gca cca aat cct gaa gcc ttt ggt ctt		1776
164 His Phe Ile Met Val Ile Leu Ala Pro Asn Pro Glu Ala Phe Gly Leu		
165	500	505
		510
167 ctt gta atc atc tcc gtt tcc gtc gtt gct atg gga cat atg atg tat		1824
168 Leu Val Ile Ile Ser Val Ser Phe Val Ala Met Gly His Met Met Tyr		
169	515	520
		525
171 ttc agg ttt gct tat aaa agc ctt gga agc cga ctc ttc ctg ttc tgt		1872
172 Phe Arg Phe Ala Tyr Lys Ser Leu Gly Ser Arg Leu Phe Leu Phe Cys		
173 530	535	540
		545
175 tca ccc gag cag aag cca gat ccc aac att ccc tca ctt cca aac tct		1920
176 Ser Pro Glu Gln Lys Pro Asp Pro Asn Ile Pro Ser Leu Pro Asn Ser		
177	550	555
		560
179 gta tag ctttttaaag agaccgttagg ccatttctac aagaqcgtagg ctttgtgtgt		1976
180 Val *		
183 tctttcagaa ccttgccagg atccccatcg ttttactaac atgcatacg ttttgtgttt		2036
184 cagtgtgtg cattgagtaa atatccctcg ccataaggcta aaataacaaa gagaaggagc		2096
185 tcttttttgc atagcatact tcacttctca tatcatgttc aagggtgtgt aaaaatgcc		2156
186 taqaagcaac cgttaggagga aatatataca tggaaactac gggttctatca tgctttatgt		2216
187 acctttgtaa gagtccaaaaa gcaaaaaattt gcatatttat tctatctttt cgtatttat		2276
188 tggttttttt ttcaactttt atgggtcgtag ttacaatcca gactggttat gagactttt		2336
189 caatgtgc tttttttttt atgggtcgtag ttacaatcca gactggttat gagactttt		2396
190 gttaaagtct tttaaatagc tattaaagagt ggcgtatgtt tacattcagg taaggctata		2456
191 taatgcctat atatttatatac acacgtgtat tcgtatattctt ttatctcagc ttccgtgtgt		2516
192 ctacgttgg tcaactttt tggaaagcca tgcaggccgt ttatatactgt aaccaaagt		2576
193 ggttttttt ggcatacactt ggaagtgggg gatattccgt tttttttatcg ttatataat		2636
194 tccatattat tattattacc ggtgtqalqa ttcttcttggqq atttaqcqcg tyataqgctc		2696

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/09/715,927

DATE: 12/01/2000  
TIME: 13:23:36

Input Set : A:\12421035-002 SEQ LISTING.TXT  
Output Set: N:\CRF3\12012000\I715927.raw

195 cccatcgca gaaagatatt tagcgctagg tattttgtgtc cctgtttgat ttgaaagtga 2756  
 196 ttitegcaca taatttcttgt ttatatttgc aaagattgtt acacatgcac tttacatgtat 2816  
 197 taataatacg tttccattac gaaacaagcg caacaagccc tcaggatatta cgatatttgc 2876  
 198 acaatacacaca aaacctgtcg ccgaagttca cggccaggca gaaatctga tatttttaca 2936  
 199 tgcaaaatttt tttcaaatgg ggattttcaa agtacatcaa cctcaaaactt catgatTTT 2996  
 200 accttccttat ataagacacc acacccatca cgctaatcta gatTTTCTAT aatacaaagt 3056  
 201 aaaaqttaca gactgttcta ttacttgaga tggaaagccac aatcatagaa gtactaactaa 3116  
 202 catctttta aaaccacagg tggctcgaca tagatatata gatatatata tatqaqgtgt 3176  
 203 ttatataatag ttgtgtataa ttgtatgttgg acaccagcgg gaatccacca tatgcacaga 3236  
 204 acagagaagg gattatttgag tccagtgtgt gaaacggctgg ttgcagcgc agctgggtcc 3296  
 205 aaacacagg gccaaggcact acgttgcac actgtacttg ctaagtttgc gttttttttt atgtgtgaga 3356  
 206 actactcat gggccccaa cqacacact gtcagttttt cattgtgtca gtctttctgt 3416  
 207 gaatgtgaag ctttattttttt atctgtaaaaa tattttttatg ttgacttagtt 3476  
 208 ttgtttcaat cgggttttac ctcctttgtt aggcccacaga ttccccccctt ttagacaaga 3536  
 209 gaagtaaaca catttgcataa attttgtact ttcgacaccc agttaaatgt aacagaagaa 3596  
 210 cctaaatattttttata agatatttga ttctgttcat gtttgggtgc atatttgcaa 3656  
 211 taattttgttgc ttacacttca ttcgttggg aggattatag aacttttagtc ttgtatttgc 3716  
 212 tctcaacttcg actgaaataa acagattttt atctaaaaaaa aaaaaaaaaa aaaaaaaaaa 3773  
 214 <210> SEQ ID NO: 2  
 215 <211> LENGTH: 562  
 216 <212> TYPE: PRT  
 217 <213> ORGANISM: Danio rerio  
 219 <400> SEQUENCE: 2  
 220 Met Asp Ser Pro Ala Ser Lys Lys Pro Arg Cys Glu Arg Phe Arg Glu  
 221 1 5 10 15  
 222 Phe Phe Lys Ser Ala Lys Phe Leu Ile Tyr Val Gly His Ala Leu Ser  
 223 20 25 30  
 224 Thr Trp Gly Asp Arg Met Trp Asn Phe Ala Val Ala Val Phe Leu Val  
 225 35 40 45  
 226 Glu Leu Tyr Gly Asn Ser Leu Leu Leu Thr Ala Val Tyr Gly Leu Val  
 227 50 55 60  
 228 Val Ala Gly Ser Val Leu Leu Leu Gly Ala Ile Ile Gly Asp Trp Val  
 229 65 70 75 80  
 230 Asp Lys Asn Pro Arg Leu Lys Val Ala Gln Thr Ser Leu Val Val Gln  
 231 85 90 95  
 232 Asn Ser Ala Val Ile Leu Cys Gly Ala Leu Leu Met Ala Val Phe Gln  
 233 100 105 110  
 234 Phe Lys Gln Gln Leu Ser Ser Met Tyr Asp Gly Trp Leu Leu Thr Thr  
 235 115 120 125  
 236 Cys Tyr Ile Met Val Ile Ser Ile Ala Asn Ile Ala Asn Leu Ala Ser  
 237 130 135 140  
 238 Thr Ala Met Ser Ile Thr Ile Gln Arg Asp Trp Val Val Val Ala  
 239 145 150 155 160  
 240 Gly Asp Asp Arg Ser Lys Leu Ala Asp Met Asn Ala Thr Val Arg Ile  
 241 165 170 175  
 242 Ile Asp Gln Leu Thr Asn Ile Leu Ala Pro Met Leu Val Gly Gln Ile  
 243 180 185 190  
 244 Met Ala Phe Gly Ser His Phe Ile Gly Cys Gly Phe Ile Ser Gly Trp  
 245 195 200 205

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/09/715,927

DATE: 12/01/2000  
TIME: 13:23:36

Input Set : A:\12421035-002 SEQ LISTING.TXT  
Output Set: N:\CRF3\12012000\I715927.raw

```

246 Asn Leu Phe Ser Met Cys Leu Glu Tyr Phe Leu Leu Trp Lys Val Tyr
247      210           215           220
248 Gln Lys Thr Pro Ala Leu Ala Phe Lys Ala Gly Gln Lys Asp Ser Asp
249 225           230           235           240
250 Asp Gln Glu Leu Lys His Leu Asn Ile Gln Lys Glu Ile Gly Asn Thr
251      245           250           255
252 Glu Ser Pro Val Glu Ala Ser Gln Leu Met Thr Glu Ser Ser Glu Pro.
253      260           265           270
254 Lys Lys Asp Thr Gly Cys Cys Tyr Gln Met Ala Glu Pro Ile Arg Thr
255      275           280           285
256 Phe Lys Asp Gly Trp Val Ala Tyr Tyr Asn Gln Ser Ile Phe Phe Ala
257      290           295           300
258 Gly Met Ser Leu Ala Phe Leu Tyr Met Thr Val Leu Gly Phe Asp Cys
259 305           310           315           320
260 Ile Thr Thr Gly Tyr Ala Tyr Thr Gln Gly Leu Asn Gly Ser Val Leu
261      325           330           335
262 Ser Leu Leu Met Gly Ala Ser Ala Val Ser Gly Ile Cys Gly Thr Val
263      340           345           350
264 Ala Phe Thr Trp Ile Arg Lys Lys Cys Gly Leu Ile Arg Thr Gly Phe
265      355           360           365
266 Ile Ala Gly Val Thr Gln Leu Ser Cys Leu Thr Leu Cys Val Ala Ser
267      370           375           380
268 Val Phe Ala Pro Gly Ser Pro Phe Asp Leu Ser Val Ser Pro Phe Lys
269 385           390           395           400
270 Glu Val Leu Arg His Leu Phe Gly Asp Ser Gly Ser Leu Arg Glu Ser
271      405           410           415
272 Pro Thr Phe Ile Pro Thr Thr Glu Pro Pro Ile Gln Ala Asn Val Thr
273      420           425           430
274 Val Phe Glu Glu Ala Pro Pro Val Glu Ser Tyr Met Ser Val Gly Leu
275      435           440           445
276 Leu Phe Ala Gly Val Ile Ala Ala Arg Val Gly Leu Trp Ser Phe Asp
277      450           455           460
278 Leu Thr Val Thr Gln Leu Ile Gln Glu Asn Val Ile Glu Ser Glu Arg
279 465           470           475           480
280 Gly Val Ile Asn Gly Val Gln Asn Ser Met Asn Tyr Leu Leu Asp Leu
281      485           490           495
282 Leu His Phe Ile Met Val Ile Leu Ala Pro Asn Pro Glu Ala Phe Gly
283      500           505           510
284 Leu Leu Val Ile Ile Ser Val Ser Phe Val Ala Met Gly His Met Met
285      515           520           525
286 Tyr Phe Arg Phe Ala Tyr Lys Ser Leu Gly Ser Arg Leu Phe Leu Phe
287      530           535           540
288 Cys Ser Pro Glu Gln Lys Pro Asp Pro Asn Ile Pro Ser Leu Pro Asn
289 545           550           555           560
290 Ser Val
294 <210> SEQ ID NO: 3
295 <211> LENGTH: 2130
296 <212> TYPE: DNA
297 <213> ORGANISM: Mus musculus

```

VERIFICATION SUMMARY DATE: 12/01/2000  
PATENT APPLICATION: US/09/715,927 TIME: 13:23:37

Input Set : A:\12421035-002 SEQ LISTING.TXT  
Output Set: N:\CRF3\12012000\I715927.raw

L:12 M:270 C: Current Application Number differs, Replaced Current Application No  
L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date